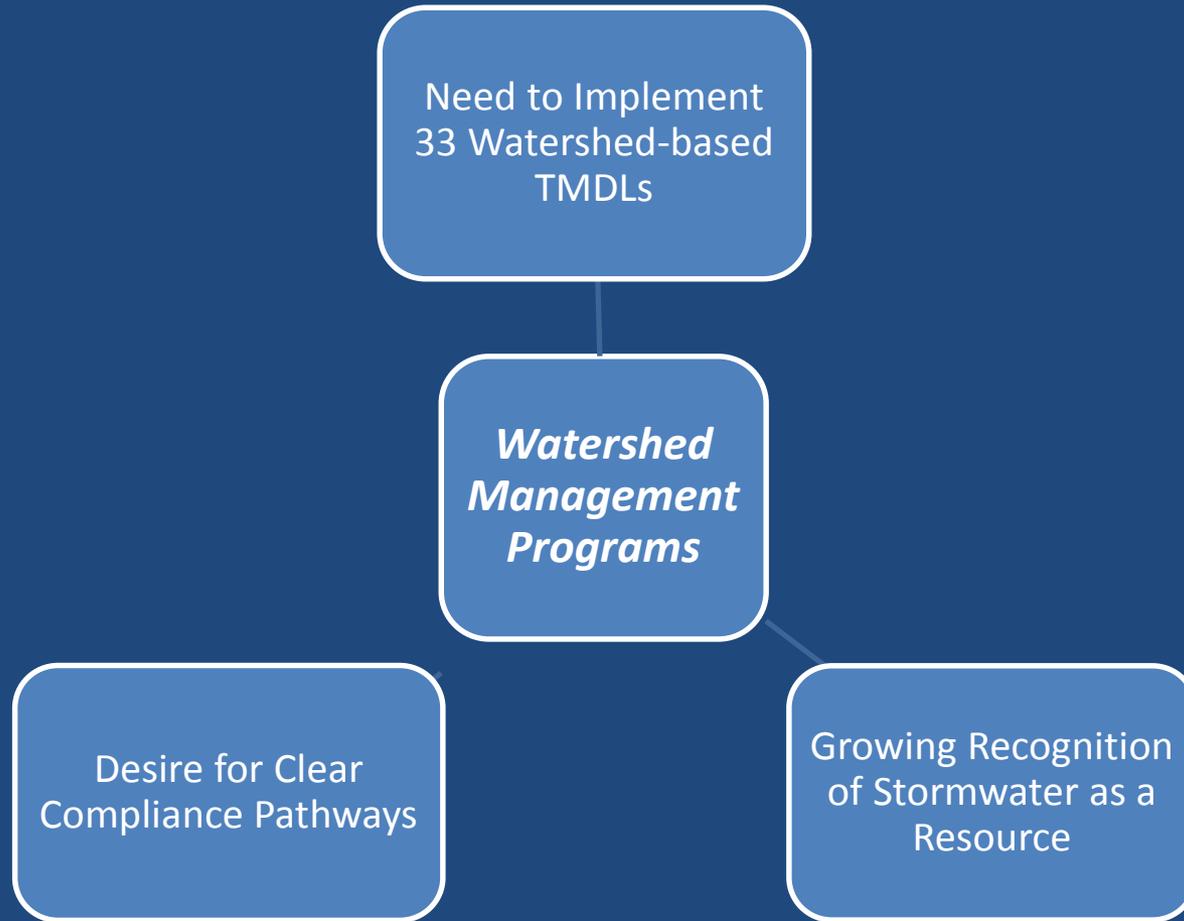


*A New Regulatory Paradigm for MS4 Permits:  
Watershed Management Programs &  
Reasonable Assurance Analyses*

Renee Purdy, Environmental Program Manager  
Los Angeles Regional Water Quality Control Board



# *The LA Story*



## 2001 PERMIT

NON-STORMWATER DISCHARGE PROHIBITIONS

RECEIVING WATER LIMITATIONS

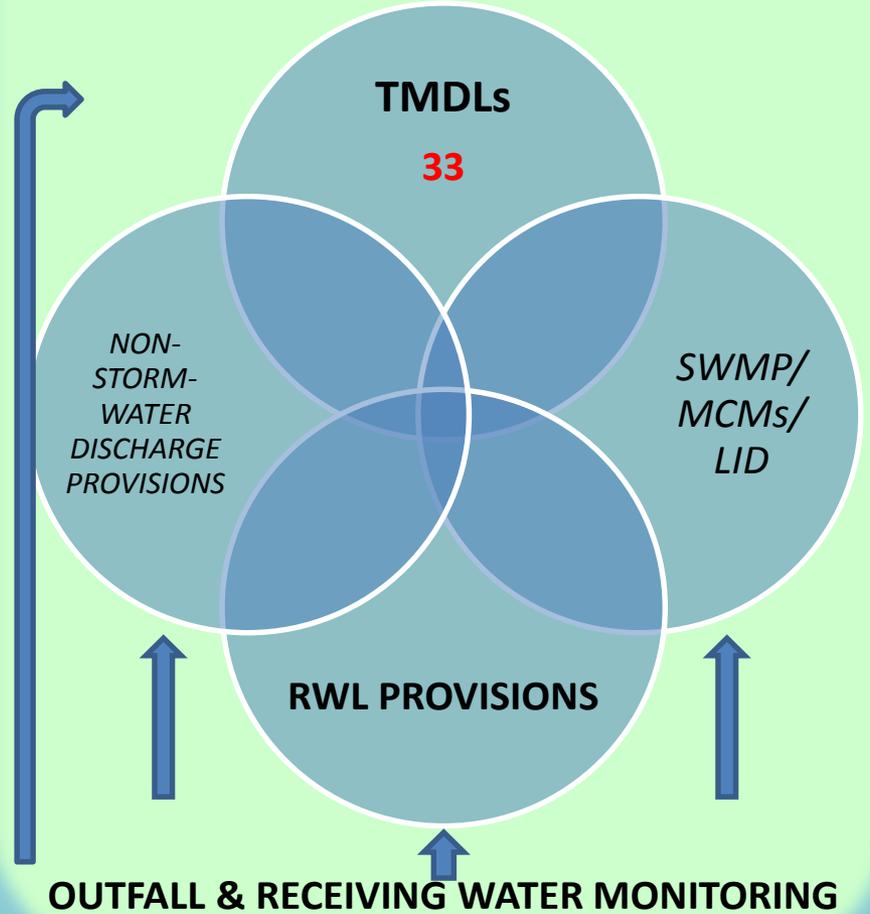
SWMP/MINIMUM CONTROL MEASURES

RECEIVING WATER MONITORING REQUIREMENTS

TMDL PROVISIONS  
**2**

## CURRENT PERMIT

### WATER QUALITY DRIVEN WATERSHED MANAGEMENT PROGRAM



# *MS4 Permit Themes*

- *Water Quality Outcomes*
  - Implements 33 TMDLs
  - Provides Clear Compliance Pathways
  - Emphasizes Pollution Prevention through Retention
- *Watershed Management*
  - Sound Science
  - Flexibility to Customize SWMP Requirements
  - Fosters Collaboration
  - More Cost Effective
- *Multi-Benefit Projects*
  - Water Supply Resiliency
  - Urban Greening
  - Habitat
  - Recreation

# *Permittee Options*

- 1. Watershed Management Program (WMP)*
  - a. Individual Basis
  - b. Collaborative among Permittees within a watershed
- 2. Enhanced Watershed Management Program (EWMP)*
  - a. Assumes collaboration among Permittees and other partners (e.g., water suppliers) within a watershed
- 3. No Watershed Management Program*



## Locations of WMPs

San Gabriel Valley area

Lower San Gabriel River

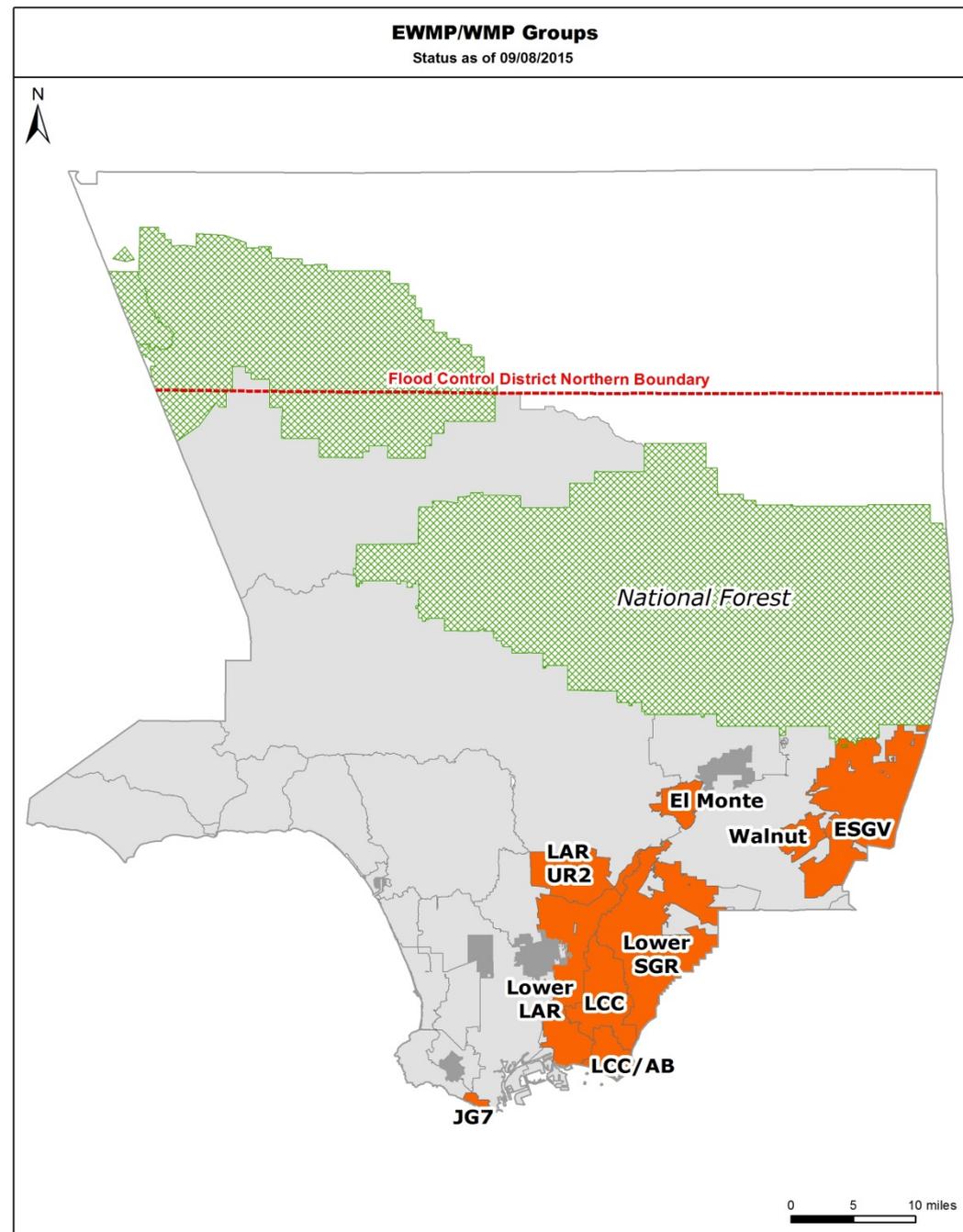
Alamitos Bay/Los Cerritos Channel

Los Cerritos Channel

Los Angeles River Upper Reach 2

Lower Los Angeles River

PV Peninsula (City of Los Angeles)

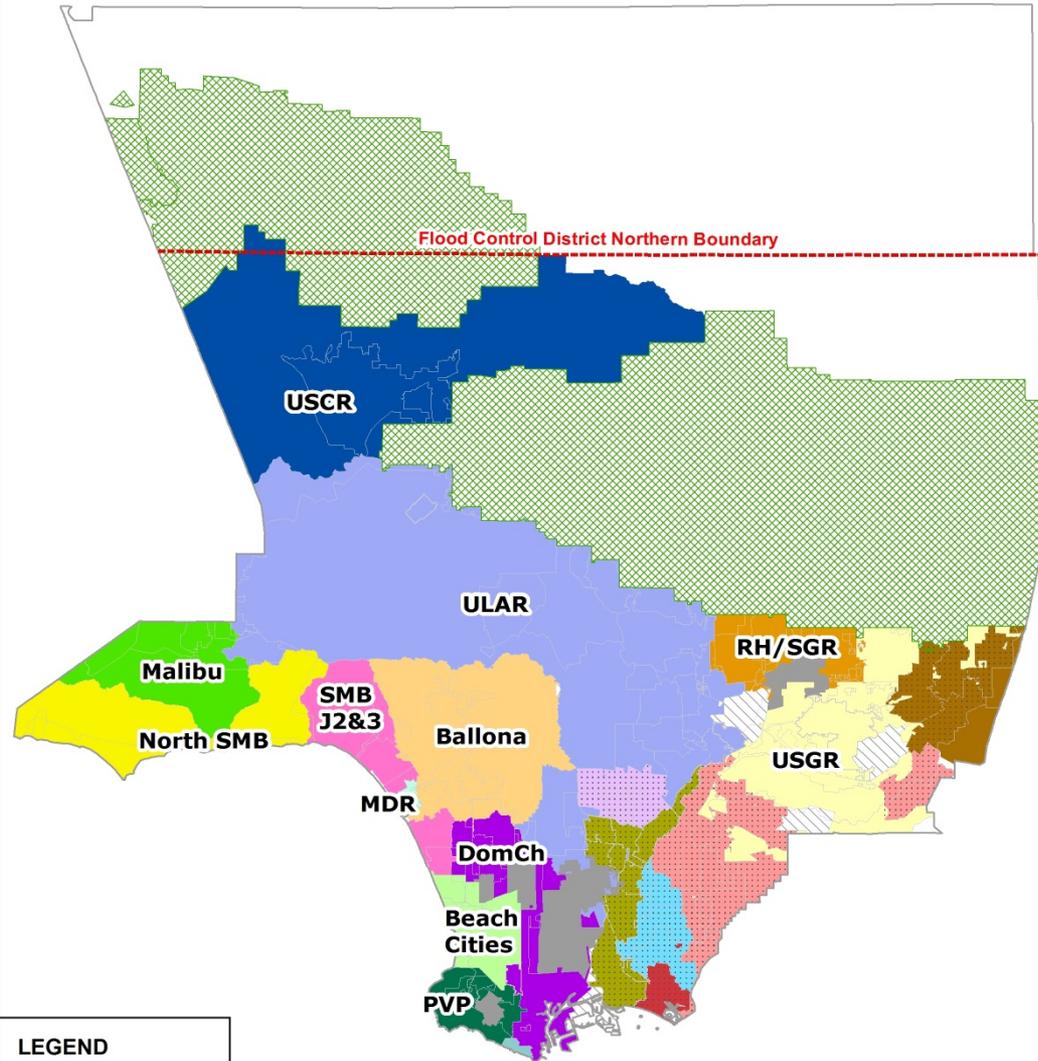


# What is an *Enhanced* Watershed Management Program?

*... one that comprehensively evaluates opportunities ... in a watershed management area, for collaboration ... on multi-benefit regional projects that, wherever feasible, retain ... all storm water runoff from the 85<sup>th</sup> percentile, 24-hour storm event for the drainage areas ... while also achieving other benefits including flood control and water supply ...*

# EWMP/WMP Groups

Status as of 06/29/2015



## LEGEND

- No WMP
- National Forest
- Collaborative WMP
- Individual WMP

0 5 10 miles

# *Benefits of Watershed Management Programs*

## Water Quality Benefits

- Significant Reduction in Stormwater Loads
- Elimination of Non-stormwater Loads

## Economic & Community Benefits

- Opportunity to pool resources
- Partnerships with non-permittees
- Multiple benefits with economic value

## Compliance Demonstration

- Proactively address RWLs not addressed by a TMDL
- Phased implementation for RWLs
- Action based compliance demonstration per WMP/EWMP
- Retention of the design storm constitutes compliance

# WMP Elements

## Identify Watershed Priorities

- Water quality characterization
- Source assessment
- Prioritization

## Select Watershed Control Measures

- Customize Minimum Control Measures
- Identify Structural BMPs/Regional Projects
- Establish Measurable Milestones

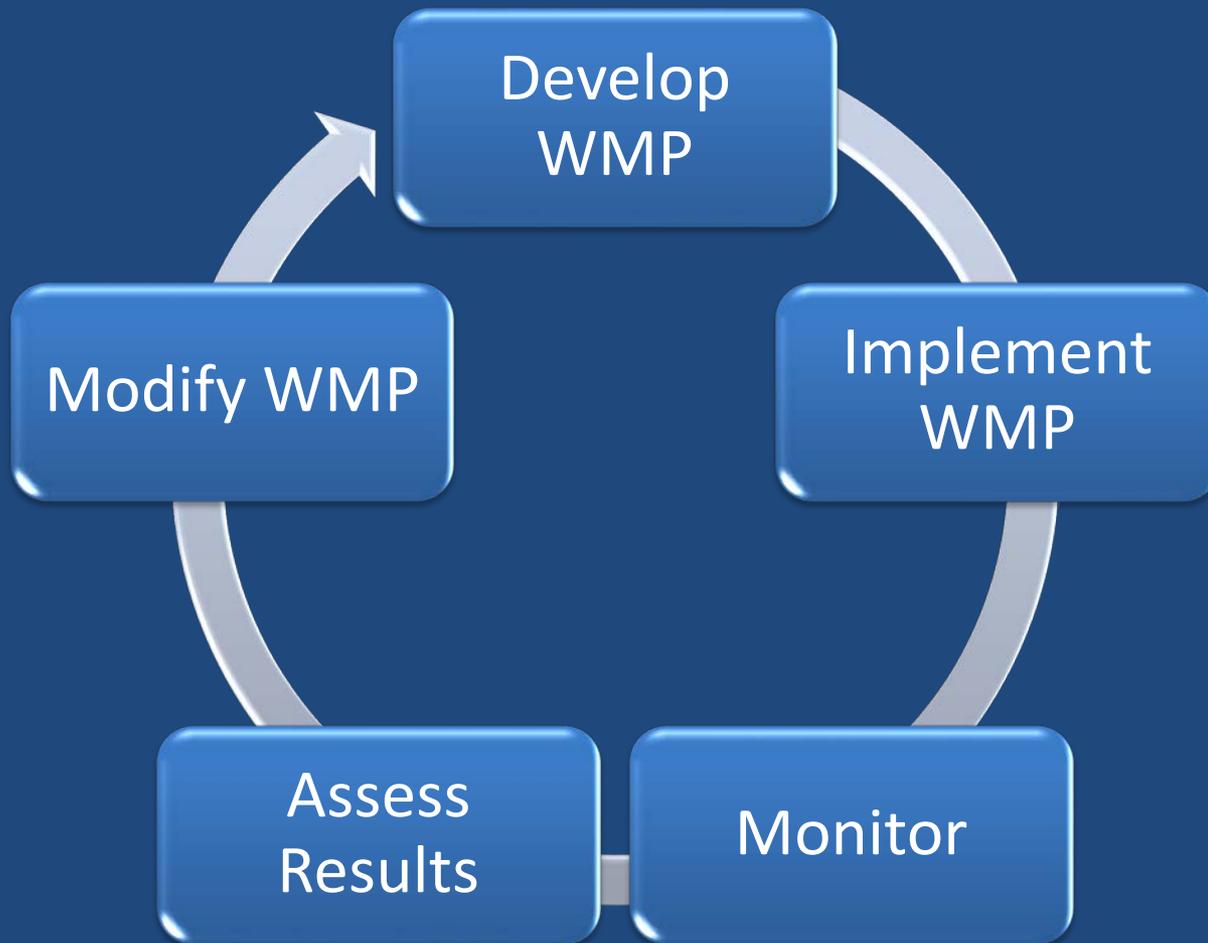
## Conduct Reasonable Assurance Analysis

- Model Required Reductions & BMPs
- Focus on nearer term deadlines & progress toward achieving final deadlines

## Develop Monitoring & Assessment Program

- Outfall Monitoring
- Receiving Water Monitoring
- Adaptive Management Process

# Implementation Cycle



# Reasonable Assurance Analysis

## Part VI.C.5.b.iv(5) - RAA Provisions

- (5) Permittees shall conduct a Reasonable Assurance Analysis for each water body-pollutant combination addressed by the Watershed Management Program. A Reasonable Assurance Analysis (RAA) shall be quantitative and performed using a peer-reviewed model in the public domain. Models to be considered for the RAA, without exclusion, are the Watershed Management Modeling System (WMMS), Hydrologic Simulation Program-FORTRAN (HSPF), and the Structural BMP Prioritization and Analysis Tool (SBPAT). The RAA shall commence with assembly of all available, relevant subwatershed data collected within the last 10 years, including land use and pollutant loading data, establishment of quality assurance/quality control (QA/QC) criteria, QA/QC checks of the data, and identification of the data set meeting the criteria for use in the analysis. Data on performance of watershed control measures needed as model input shall be drawn only from peer-reviewed sources. These data shall be statistically analyzed to determine the best estimate of performance and the confidence limits on that estimate for the pollutants to be evaluated. The objective of the RAA shall be to demonstrate the ability of Watershed Management Programs and EWMPs to ensure that Permittees' MS4 discharges achieve applicable water quality based effluent limitations and do not cause or contribute to exceedances of receiving water limitations.
- (a) Permittees shall demonstrate using the RAA that the activities and control measures identified in the Watershed Control Measures will achieve applicable water quality-based effluent limitations and/or receiving water limitations in Attachments L through R with compliance deadlines during the permit term.
- (b) Where the TMDL Provisions in Part VI.E and Attachments L through R do not include interim or final water quality-based effluent limitations and/or receiving water limitations with compliance deadlines during the permit term, Permittees shall identify interim milestones and dates for their achievement to ensure adequate progress toward achieving interim and final water quality-based effluent limitations and/or receiving water limitations with deadlines beyond the permit term.
- (c) For water body-pollutant combinations not addressed by TMDLs, Permittees shall demonstrate using the RAA that the activities and control measures identified in the Watershed Control Measures will achieve applicable receiving water limitations as soon as possible.

## RAA Guidance



Los Angeles Regional Water Quality Control Board

**GUIDELINES FOR CONDUCTING REASONABLE ASSURANCE ANALYSIS  
IN A WATERSHED MANAGEMENT PROGRAM, INCLUDING  
AN ENHANCED WATERSHED MANAGEMENT PROGRAM**

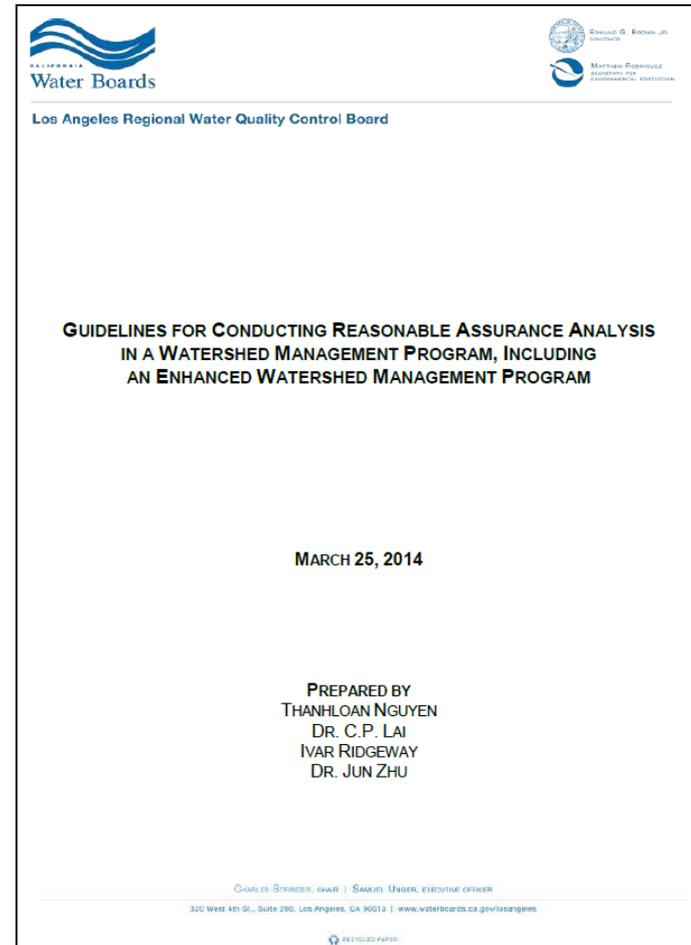
**MARCH 25, 2014**

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REVISED 3/14/14

# Approach to Initial RAAs in LA MS4

- WMPs used regionally (countywide) calibrated models
  - Precipitation
  - Stream flow
  - Rainfall-runoff relationships
  - Water quality data
- Models reflect best engineering judgment & available data
- Re-calibration and local refinement with CIMP data
- Complete update of RAA required by State Board Order by 2021



# Challenges of “Dry Weather” RAA

- Dry-weather/Non-stormwater modeling considerations
  - Models designed for stormwater
  - Unpredictability of Non-stormwater
- Dry weather approach
  - Non-stormwater screening and monitoring program
  - Elimination of non-stormwater discharges
  - TMDL specific strategies
  - Stormwater BMPs (parcel & regional)

# WMP Measurable Milestones

- RAA-Based Overall Volume Reduction Milestones:
  - 2017: 10% Reduction
  - 2020: 35% Reduction
  - 2026: Final Reduction
- Control Measure-Specific Milestones:
  - Nonstructural Control Measures
  - Prop 84 Projects
  - Regional Project site assessment and analysis

# Specificity – Structural BMPs

Location Schedule

Type

Table 9-4. Lower Los Angeles River Pollutant Reduction Plan for Attainment of Interim and Final Limits

Jurisdiction	Milestone	COMPLIANCE TARGET		Existing Distributed BMP Volume (acre-ft)	POLLUTANT REDUCTION PLAN					
		Remaining MS4 Responsible Critical Year Storm Volume* (acre-ft/year)			Total Estimated Right-of-Way BMP Volume (acre-ft)		Estimated Potential LID on Public Parcels Volume (acre-ft)		Remaining BMP Volume (Potentially Regional BMPs) (acre-ft)	
		Incremental	Cumulative		Incremental	Cumulative	Incremental	Cumulative	Incremental	Cumulative
Downey	31%	143.8	143.8	1.1	12.2	12.2	0.7	0.7	7.1	7.1
	50%	187.1	330.9	0.7	2.5	14.7	10.1	10.8	0.6	7.7
	Final	323.9	654.7	2.0	31.2	45.9	4.4	15.3	10.7	18.4
Lakewood	31%	7.9	7.9	NA	1.1	1.1	0.0	0.0	-	-
	50%	-	7.9		-	1.1	-	0.0	-	-
	Final	-	7.9		-	1.1	-	0.0	-	-
Long Beach	31%	6.5	6.5	NA	1.0	1.0	0.0	0.0	-	-
	50%	67.0	573.5		40.3	41.3	7.5	7.5	24.7	24.7
	Final	1,832.7	2,406.2		113.4	154.6	20.8	28.3	111.5	136.2
Lynwood	31%	235.9	235.9	NA	18.4	18.4	2.7	2.7	13.1	13.1
	50%	334.9	370.8		12.8	31.2	3.8	6.5	0.1	13.2
	Final	297.2	667.9		22.7	53.9	4.5	11.1	17.3	30.5
Paramount	31%	163.7	163.7	0.1	9.0	9.0	1.7	1.7	10.2	10.2
	50%	65.7	229.4		7.4	16.4	0.8	2.5	0.3	10.4
	Final	176.6	606.1		14.9	31.2	2.1	4.7	30.2	40.6
Pico Rivera	31%	275.3	275.2	NA	11.5	11.5	0.5	0.5	27.4	27.4
	50%	-	275.2		-	11.5	-	0.5	-	27.4
	Final	12.0	287.2		1.3	12.8	0.0	0.5	0.5	27.9
Signal Hill	31%	8.5	8.5	0.2	0.8	0.8	0.2	0.2	0.2	0.2
	50%	105.8	114.3		7.0	7.8	0.9	1.1	5.9	6.1
	Final	51.9	166.2		2.2	10.0	0.0	1.1	4.9	11.0
South Gate	31%	229.3	229.3	4.7	23.2	23.2	0.9	0.9	6.5	6.5
	50%	198.1	427.4		15.0	38.3	0.8	1.7	12.6	19.1
	Final	746.9	1,174.3		49.3	87.5	5.1	6.8	54.7	73.8

Number



# Lesson Learned

- New Level of Effort
- Balancing Length of Planning Period with Start of Implementation
  - Value of Early Actions during Planning
- Data Considerations, RAA, Monitoring & Adaptive Management
  - Use of Best Professional Judgment
- Appropriate Degree of BMP Specificity vs. Flexibility
  - Nearer term vs. Longer term deadlines
- Importance of a Financial Strategy
- Establishing Partnerships
- Stakeholder Input